



AskUsHow™

SERVICE REPORT LSR# 1801720

END USE APPLICATION: Arch. Cladding

Purpose: FreMarq Innovations manufactures high performance framing systems. They are new to adhesives and want to evaluate LORD 850/25GB, LORD Maxlok MX/T6 and LORD 606/6GB adhesive for performance to supplied 6061 aluminum and pultruded FRP substrates.

EXPERIMENTAL PARAMETERS:

Adhesive: 1. LORD 850/25GB acrylic adhesive (10:1 by volume) B#0011821469
2. LORD Maxlok MX/T6 acrylic adhesive (4:1 by volume) B# 0011802326
3. LORD 606/6GB acrylic adhesive (10:1 by volume) B# 0011821468
(Adhesive dispensed from Ratio-Pak Cartridges)

Substrate: 6061 Aluminum substrate cut into 1"x4" coupons
Pultruded FRP substrate cut into 1"x4" coupons,
(substrates supplied by Fremarq Innovations)

Surface Prep: IPA wipe on all bonding surfaces. Sanded and un-sanded FRP bonding areas.

Cure: 24 hours ambient lab minimum

Assemblies: Lap Shears (LSS) per ASTM D1002 at 0.5 inch/minute strain rate
Adhesive thickness: 0.25 mm (0.010 inch)
Overlap: 0.5 inch target

Test: Test Lap Shears on UTS in Wixom, MI

Test Results: See Datasheet for specific results, summary below:

Table with 5 columns: Condition, Adhesive (Lord 850/25GB, Maxlok MX/T6, LORD 606/6GB), Strength (psi), Failure Mode. Rows include IPA Wipe only and FRP w/ 80 Grit Sandpaper then IPA on all substrate.

CF: Cohesive failure mode
AF: Adhesive failure mode

Conclusion: All three adhesives LORD 850/25GB, MAXLOK MX/T6 AND LORD 606/6GB would be recommended for bonding the supplied 6061 aluminum to pultruded FRP substrates based on the data generated. MAXLOK MX/T6 shows a slightly increased overall bonding strength with these substrates. Sanding of the FRP bond areas did not show a significant increase in strength during testing.

	<b>LSR#1801720</b>
AUTHOR:	Patrick Tallman
LAB TECHNICIAN:	
TECHNICAL SUPERVISOR:	Douglas Craig
DATE WORK WAS COMPLETED:	08/09/2018
REQUESTED BY:	Daniel Pomerleau
CUSTOMER:	Fremarq Innovations
CUSTOMER CONTACT INFO	
Ben Knopse	(Distributor)
<p><b>DISCLAIMER:</b> Information contained herein is based upon tests or data believed to be reliable. Any conclusions or recommendations herein are advisory in nature, are based upon best knowledge currently available to the author, and are offered only as a service to the reader. Inasmuch as Lord Corporation has no control over the exact manner in which others may use this information, it does not guarantee the results to be obtained. <u>Lord Corporation makes no express or implied warranty of reliability, repeatability, merchantability, or fitness for a particular purpose concerning the information provided herein.</u></p>	
<p><b>PROPRIETARY NOTICE:</b> The information contained herein is proprietary to Lord Corporation and shall not be reproduced or disclosed in whole or in part or used for any design or manufacture except when such user possesses direct, written authorization from Lord Corporation.</p>	

# Freemarq Innovations - Arch. Cladding

Cure Condition:

Room temperature cure overnight minimum

Test Procedure:

Lap shear test with target 0.5 inch x 1 inch bond area, at test speed of 0.5 inches per minute

Substrates:

Pultruded FRP to 6061 Aluminum

Surface Preparation:

IPA wipe all bonding surfaces. Sanded and Unsanded FRP bonding surfaces.

Adhesive:

Lord 850/25GB

Maxiok MX/T6

Lord 606/6GB

#	Lord 850/25GB			Maxiok MX/T6			Lord 606/6GB		
	Load (lbs)	Area (in <sup>2</sup> )	Strength (psi)	Load (lbs)	Area (in <sup>2</sup> )	Strength (MPa)	Load (lbs)	Area (in <sup>2</sup> )	Strength (MPa)
111	1325	0.5550	2387	1734	0.5310	3266	2252	22515	1521
112	1187	0.5340	2223	1424	0.5070	2837	1956	19558	1526
113	1185	0.4960	2389	1181	0.4930	2396	1652	16517	1703
114	1200	0.5100	2353	1340	0.5790	2314	1596	15957	1641
115	1200	0.5620	2135	1430	0.4900	2918	2012	20121	1602
Mean	1219.4		2298	1421.8		2746	18.93	18934	15.99
Stand Dev	59.45		113	201.38		393	2.71	2708	0.77

#	Lord 850/25GB			Maxiok MX/T6			Lord 606/6GB		
	Load (lbs)	Area (in <sup>2</sup> )	Strength (MPa)	Load (lbs)	Area (in <sup>2</sup> )	Strength (psi)	Load (lbs)	Area (in <sup>2</sup> )	Strength (MPa)
121	1327	0.5610	2365	1542	0.5410	2850	1965	19652	1596
122	1267	0.5440	2329	1310	0.5170	2534	1747	17470	1626
123	1232	0.5490	2244	1427	0.5370	2657	1832	18322	1752
124	1243	0.5300	2345	1361	0.5450	2497	1722	17218	1726
125	1457	0.5420	2688	1523	0.5240	2906	2004	20040	17024
Mean	1305.2		2394	1432.6		2689	18.54	18540	16.80
Stand Dev	92.473		53	100.41		184	1.27	1267	0.67

CF: Cohesive failure mode

AF: Adhesive failure mode